WEATHER OF THE MONTH.

WEATHER OF NORTH AMERICA AND ADJACENT OCEANS.

NORTH ATLANTIC OCEAN.

By F. A. YOUNG.

The average pressure for the month was considerably below the normal at land stations on the American coast, from Newfoundland to Georgia as well as in the Azores, while it was slightly below on the northern shore of the Gulf of Mexico, in the Bermudas and in the greater part of the British Isles; it was higher than usual on the north coast of Scotland, and slightly above the normal in the West Indies.

December is considered the stormiest month of the year on the North Atlantic, and the month under discussion was no exception to the general rule, although the number of days in which winds of gale force were reported in the steamer lanes was not far from the normal, as shown on the pilot chart; they were somewhat more frequent than usual between the 35th and 40th parallels, west of the 50th meridian.

Very few reports of fog were received from vessels, although it was observed frequently at land stations in England and Scotland.

On December 1 there was a severe disturbance central near latitude 35° N., longitude 36° W., and the observer on the British S. S. *Idaho* states that from 8 p. m. on the 1st to 8 a. m. on the 2d his vessel experienced north easterly gales that at times increased to hurricane force with heavy seas and rain squalls. The lowest barometer reading was 29.77 inches at midnight of the 1st; position, latitude 38° 03′ N., longitude 41° 44′ W. On the 1st there was also a disturbance about 300 miles west of the Irish coast, as shown by the storm log of the Danish S. S. *Oscar II*, which follows:

Gale began on November 30. Lowest barometer 28.51 inches at 8 p. m. on the 30th; position, latitude 57° 35′ N., longitude, 17° 20′ W. End of gale on December 3. Highest force of wind, 10; shifts of wind near time of lowest barometer, SW–WSW.

On the 2d a low was central near Halifax, N. S., and strong westerly gales swept the American coast between the 30th and 45th parallels. Storm logs are as follows:

West Isleta, American S. S.:

Gale began on the 1st. Lowest barometer 29.14 inches at 4 p. m. on the 2d; position, latitude, 42° 34′ N., longitude, 61° 25′ W. End of gale on the 3d. Highest force of wind, 10; shifts of wind near time of lowest barometer, W.–SSW.–S.–W.–WSW.–WNW.–NW.–WNW.–W.

Steelmaker, American S. S.:

Gale began on the 2d. Lowest barometer 30.16 inches at 3 a. m. on the 2d; position, latitude, 29° 50′ N., longitude, 74° 15′ W. End of gale 11 a. m. on the 2d. Highest force of wind, 8; shifts not given.

As shown on Chart IX for December 3, this disturbance moved but little during the next 24 hours, with northerly gales in the western quadrants and southerly in the eastern.

Unusually heavy weather was experienced by one vessel in tropical waters as seen by the storm log from the American S. S. *Point Bonita*:

Lowest barometer 29.74 inches at 10:30 a. m. November 30. Gale began on November 30; position, latitude 9° 30′ N., longitude 79° 55′ W. End of gale December 4. Highest force of wind 8, steady from northeast.

On the 4th the center of the northern disturbance was near latitude 50°, longitude 40°, and winds of gale force prevailed over the middle section of the steamer lanes, as well as in the vicinity of the Irish Channel and French coast.

From the 5th to the 7th no unusual conditions existed, although a few vessels in northern waters reported moderate to strong gales.

On the 8th and 9th moderate to strong northwesterly to westerly gales were encountered over the region between the coasts of Spain and Portugal and the 20th meridian. Storm logs:

Giuseppe Verdi, Italian S. S.:

Gale began on the 8th. Lowest barometer 29.54 inches at 8 p. m. on the 8th. Position, latitude 35° 58′ N., longitude 12° 03′ W. End of gale on the 9th. Highest force of wind, 9; shifts not given.

Westmoreland, American S. S.:

Gale began on the 8th. Lowest barometer 29.56 inches at 6 p. m. on the 8th; position, 35° 58′ N., longitude 6° 30′ W. End of gale on the 10th. Highest force of wind, 9; shifts SW.–NW.

Shortly after the Greenwich Mean Noon observation on the 8th a severe disturbance of limited extent developed in the vicinity of Cape Hatteras. Storm logs:

Radiant, American S. S.:

Gale began on the 8th. Lowest barometer 29.66 inches at 10 a. m. on the 8th. Position, latitude 34° 31′ N., longitude 76° 06′ W. End of gale on the 9th. Highest force of wind, 9; shifts not given.

Manchester Port, British S. S.:

Gale began on the 9th. Lowest barometer 29.65 inches at 7 a. m. on the 9th; position, latitude 37° 20′ N., longitude 73° 34′ W. End of gale on the 9th. Highest force of wind, 10; shifts not given.

This LOW drifted slowly northward along the American coast, and on the 11th the center was near Halifax, N. S. A few vessels a short distance north of Bermuda encountered moderate to strong gales on both the 10th and 11th, although the storm area was of limited extent.

On the 9th and 10th a severe disturbance covered a large area over the central portion of the steamer lanes, although not enough observations were received to determine its northern limits. Storm logs follow:

Swazi, British S. S.:

Gale began on the 9th. Lowest barometer 28.83 inches at 9 p. m. on the 9th. Position, latitude 54° 05′ N., longitude, 29° 26′ W. End of gale on the 11th. Highest force of wind 9; shifts, SSW.–WNW.

Kerowlee, American S. S.:

Gale began on the 9th. Lowest barometer 29.42 inches at 5 a. m. on the 9th. Position, latitude 47° 45′ N., longitude 41° 15′ W. End of gale on the 10th. Highest force of wind, 10; shifts of wind N.–NW.

Bardic, British S. S.:

Gale began on the 7th. Lowest barometer 29.57 inches at noon on the 10th. Position, latitude, 49° 30′ N., longitude, 30° 21′ W. End of gale on the 11th. Highest force of wind 10; steady from SW.

On the 13th there was a LOW central about 300 miles east of St. Johns, N. F. that moved slowly eastward with a comparatively uniform rate of speed, and on the 17th the center was near latitude 50°, longitude 25°. On the 13th and 14th northeasterly gales prevailed between the coast of Newfoundland and the 45th meridian, and on the 15th and 16th only a few gale reports were received from vessels in widely scattered positions, while on the 17th moderate gales prevailed near the center, as shown on Chart X.

At Greenwich Mean Noon on the 17th a number of vessels in the 5-degree square south of St. John's, N. F., reported moderate easterly winds that afterwards de-

veloped into a severe disturbance which moved rapidly eastward, as on the morning of the 18th the center was near latitude 50°, longitude 40°. A large number of special reports were received from vessels regarding this storm which was of a most unusual nature in many respects. Some of the storm logs and reports are as follows:

Nieuw Amsterdam, Dutch S. S.:

Gale began on the 17th. Lowest barometer 28.56 inches at noon on the 17th. Position, latitude 43° 18′ N., longitude, 55° 18′ W. End of gale on the 17th. Highest force of wind, 12; shifts ENE.–NNW.

At 12:05 p. m. on the 17th, wind reached hurricane force, holding for half an hour, barometer rising, and within 10 minutes there was an extraordinary high sea and swell. Diminishing wind and swell in the evening; rain showers and lightning in the southwest.

Osawatomie, American S. S.:

Gale began 17th. Lowest barometer 28.35 inches at 2:35 p. m. on the 17th. Position, latitude 43° 43′ N., longitude 53° 40′ W. End of gale 11 a. m. on the 18th. Highest force 11; shifts SW.–W.–WNW.–NW.

At noon on the 17th, barometer read 28.58 inches; the weather was foggy with wind south, force 4. At 1 p. m. A. T. S. wind became west, force 6, for about 20 minutes; barometer rapidly falling all the time. The wind then shifted back to SW., 6, until 2:35 p. m., when it became WNW., 12, lasting for about an hour, the barometer rising rapidly in the meanwhile. At 9 a. m. on the 18th wind was SW. and began hauling toward the NW.; similar to that of the 17th but of slightly less violence and did not last so long; barometer then began to rise slowly. Sky covered with cirrus veil. Position, Greenwich Mean Noon December 18, latitude 43° 05′ N., longitude 56° 04′ W.

Mongolian Prince, British S. S.:

At noon December 17, wind WSW., 3, barometer 29.67 inches, position, latitude 47° 24′, longitude 38° 20′ W. 3 p. m., S. 3; 29.63 inches. 5 p. m. SSE., 4; 29.59 inches; 9 p. m.; SW., 9; 29.17 inches, terrific squalls. Midnight, SW., 12; 29.25 inches; hurricane. December 18, 3 a. m. W., 12, 29.31 inches; 8 a. m. W. by N., 12; 29.53 inches. Noon, W. by N., 9; 29.62 inches; 19th, 1 a. m. NW. squally, heavy rain, weather moderating.

On the 17th strong westerly gales were encountered off Hatteras, and on the 16th and 17th one vessel reported similar conditions in the Gulf of Mexico. Storm logs are as follows:

Hartford, American S. S.:

Gale began on the 15th. Lowest barometer 30.07 inches at noon on the 17th; position, latitude 30° 11′ N., longitude, 88° W. Gale continued until ship entered Mobile Bay on the 17th. Highest force of wind, 8; no shifts given.

W. M. Burton, American S. S.:

Gale began on the 17th. Lowest barometer 29.54 inches at 10:30 a. m. on the 17th; position, latitude 34° 58′ N., longitude 73° 29′ W. End of gale on the 18th. Highest force of wind 12; shifts not given.

On the 20th a moderate disturbance was central near latitude 50, longitude 22, that developed into one of considerable force 24 hours later, when the center was near the north coast of Ireland. Storm logs follow:

Scythian, British S. S.:

Gale began on the 20th. Lowest barometer 28.93 inches at 11 p. m. on the 21st; position, latitude 50° 24′ N., longitude 19° W. End of gale on the 22d. Highest force of wind, 10; shifts, SW.–W.–NW.

Eglantier, Belgian S. S.:

Gale began on the 21st. Lowest barometer 29.19 inches on the 21st; position, latitude 49° 43′ N., longitude 7° 29′ W. End of gale on the 23d. Highest force of wind, 10; shifts S.–WSW.–W.

On the 22d and 23d unusually heavy weather prevailed in the region between the Azores and the Bermudas, the storm area extending as far south as the 30th parallel. Storm logs:

Oranian, British S. S.:

Gale began on the 22d. Lowest barometer 29.40 inches at 1 a. m. on the 23d; position, latitude 36° 30′ N., longitude, 32° 10′ W. End of gale on the 28th. Highest force of wind, 9. Wind varying between WNW. and WSW. Very heavy squalls during the period between the 22d and 28th. Barometer in these squalls ranging from 29.42 inches to 29.67 inches.

From December 23 to the end of the month the Azores HIGH was replaced by a persistent LOW, the barometer reading at Horta, Azores, ranging from 29.16 inches on the 25th to 29.84 inches on the 29th. This reversal of the normal pressure distribution was responsible for the unusual and unsettled conditions prevailing over the greater part of the ocean during this period.

On the 24th strong southerly gales were encountered in the regions between the Bermudas and the 50th parallel, as shown by the following storm logs:

Jalapa, American S. S.:

Gale began at 4 p. m. on the 23d. Lowest barometer, 29.49 inches at 4 p. m. on the 24th. Position, latitude 37° 20′ N., longitude 16° 35′ W. End of gale at noon on the 28th. Highest force of wind, 10; shifts W. by S.–SW.

Kayseeka, American S. S.:

Gale began on the 23d. Lowest barometer 28.95 inches at 5 a. m. on the 25th. Position, latitude 47° 10′ N., longitude 12° 30′ W. End of gale on the 28th. Highest force of wind, 10; steady from SW.

Charts XI, XII, and XIII show the conditions on the 25th, 26th, and 27th, respectively. Storm logs follow:

Grampian Range, British S. S.:

Gale began on the 25th. Lowest barometer, 28.81 inches at noon on the 27th. Position, latitude 46° 51′ N., longitude 35° 15′ W. End of gale on the 27th. Highest force of wind, 9; steady from NNW.

Inca, British S. S.:

Gale began on the 25th. Lowest barometer, 29.98 inches on the 25th. Position, latitude 38° 42′ N., longitude 63° 25′ W. Highest force of wind, 8; steady from NNW.

Edgewood, American S. S.:

A severe gale was encountered on the night of the 27th, and early morning of the 28th, with a heavy cross sea, SW. and NW. It was necessary for the vessel to heave-to. Lowest barometer, 29.57 inches at 10 p. m. on the 27th. Position, latitude 36° 42′ N., longitude 70° 30′ W. Highest force of wind, 10; shifts SW.–NW.

On the 28th and 29th heavy weather was the rule over the greater portion of the steamer lanes, with a well developed LOW central near midocean. Storm logs:

Stanmore, British S. S.:

Gale began on the 28th. Lowest barometer, 28.60 inches at 1 p. m. on the 29th. Position, latitude 46° 22′ N., longitude 40° 06′ W. End of gale on the 30th. Highest force of wind, 12; shifts SW.–W.–S.

Gaasterland, Dutch S. S.:

Gale began on the 29th. Lowest barometer, 28.56 inches at 9:10 p m. on the 29th. Position, latitude 47° 40′ N. longitude 33° 40′ W. End of gale on the 31st. Highest force of wind, 10; shifts S.–W.

This disturbance remained nearly stationary during the remainder of the month, and reached its greatest intensity on the 30th, as shown by Chart XIV for that date. Storm log:

Eglantier, Belgian S. S.:

Gale began on the 29th. Lowest barometer, 29.58 inches at noon on the 30th. Position, latitude 38° 02′ N., longitude 26° 05′ W. End of gale on the 31st. Highest force of wind, 9; steady from SW.

NORTH PACIFIC OCEAN.

By F. G. TINGLEY.

Over the northern part of the North Pacific Ocean, especially in the Gulf of Alaska, December was a stormy month. Reports from almost all vessels on the northern steamer routes contain references to gales and rough seas. Over the southern part of the ocean; except for a brief period at the beginning of the last decade, fine weather was general.

The most noteworthy feature of the weather of the month was the low pressure and accompanying storm conditions in the vicinity of Midway Island during the last decade. On the 22d an unusually low barometer reading of 29.36 inches was recorded at Midway Island. The lowest on record at Midway Island appears to be 29.28 inches, made on January 28, 1917.